

PROCEEDINGS OF PUBLIC COMPANIES.

GREAT WESTERN RAILWAY.

A special general meeting of the directors and proprietors of this company took place on Wednesday, the 9th inst., pursuant to adjournment, for the purpose of taking into consideration the reports of Mr. Hawkshaw and Mr. Nicholas Wood, who had been directed to go over the entire line, and give their opinion upon the working of the entire system, the increased width of gauge, and continuous timber bearings, &c.

At twelve o'clock precisely, WILLIAM UNWIN SIMS, Esq., chairman, accompanied by a large body of directors, the secretaries, engineer (Mr. Brunel), solicitor, and other officers of the company, entered the room.

The CHAIRMAN said it was unnecessary to go into any lengthened statement on the subject of their meeting, as all the shareholders had had ample opportunity of reading the reports which they had assembled to receive and consider. But the secretary would read to them a statement which had been drawn up by the court of directors, containing the results of their consideration of the reports of the engineers.

REPORT.

The directors have been enabled by the adjournment of the special general meeting from the time originally fixed for it, to give to the proprietors an interval of several days for the perusal and consideration of Mr. Wood's and Mr. Hawkshaw's reports, since those documents have been sent into circulation. Much as this postponement was to be deprecated on account of its retarding the ultimate determination of those points upon which every step towards the completion of the railway mainly depends, it has been attended with one countervailing benefit. It has given both to the directors and the proprietors ample opportunity for reflecting upon the result of the investigation undertaken by those gentlemen as comprised in their two reports, now presented for consideration at this meeting. The directors have bestowed the most anxious attention on every branch of the subject, weighing in the fullest and most impartial manner every point urged in either report, whether of actual objection to the system adopted, or of doubt as to its comparative advantages.

It may be here correctly stated that Mr. Wood deduces from experiments upon the performance of engines on the Great Western and other lines, that although a higher rate of speed has been attained on the former, it would appear only to have been accomplished by the increased power of the engines, with a much greater consumption of coke when calculated per ton per mile. He ascribes this result principally to the resistance presented by the atmosphere to the motion of railway trains, especially at high rates of speed. His remarks on that subject are qualified, however, by the expression of a doubt as to the value to be assigned to the single set of experiments on each of two inclined planes, which are quoted as the authority for the degree of atmospheric resistance supposed to have been discovered. The reduction of friction by the employment of wheels of increased diameter, and the benefit of lowering the carriage between the wheels are affirmed by Mr. Wood as incontrovertible. The increased stability, and consequent increased steadiness of motion to carriages on the wider gauge, are also admitted by him. The construction of the road is discussed in the report in every aspect. Mr. Wood states that continuous timbers will present a more perfect line of road for high speeds than stone blocks, although he estimates them as more costly. He disapproves of the use of piles, and considers that the continuous bearings should be of a scantling of timber greater than that at present in use, and that a more rigid and heavier rail should be adopted. He expresses an opinion, deduced from actual experiments, that the mode of fastening the rails to the timber by screws affords a firmer junction than any other plan. The various propositions of doubtful advantage from the wide gauge, as well as of alleged objection to it, appear to have been thoroughly considered in the report in question. The experiments on the consumption of coke at high velocities were unfavourable, and in connection with the theory of atmospheric resistance, appear to have influenced the mind of Mr. Wood to consider that a 7 feet gauge would be the width which he would deem the best. At the same time, upon a review of all the circumstances, and considering that there are countervailing advantages incidental to an increased width of gauge, he does not think that the result of his inquiries would justify a change in the dimensions adopted on this line, and he recommends that the present width should be retained. The advice thus given by Mr. Wood, upon mature reflection, being directly at variance with the conclusion at which Mr. Hawkshaw had previously arrived, upon an investigation similarly delegated to him, it became the duty of the directors to consider most attentively the train of reasoning and argument which led the latter to urge such an apparent course. Naturally expecting from that circumstance to find in his report a new and definite statement of the positive loss or disadvantage accruing from the increased width of gauge, the directors could not fail to remark with some surprise that he enforces his recommendation, not upon any ascertained injury or failure in the plan, but almost exclusively upon the presumption that all railways, however disconnected or locally situated, should be constructed of one uniform width. While he appears to think that it might be an improvement to have an addition of a few inches, five or six at the most, he still questions the expediency of any variation from the 4 ft. 8½ in. gauge.

Mr. Hawkshaw, in his report, also considers any additional expense upon the gauge, as well as upon the improvement of gradients, to be undesirable, and assumes it at a scale of augmentation far beyond the real difference of cost. His estimates on that head are impeached in the engineer's observations, and no doubt exists in the minds of the directors, that the subject, reduced to a mere question of figures, in its present position, would undoubtedly show a pecuniary loss to be borne by the company, by any such change of system as he advocates, even if it were on other grounds deemed advisable. The objection that the wide gauge might prevent junction with other lines, seems also to Mr. Wood and the directors to have little weight as applied to the Great Western Railway. Already has the same width been contemplated and provided for in the extension line through Gloucestershire to Cheltenham, and from Bristol to Exeter. Any local branches hereafter to be made would undoubtedly follow the same course, and the proprietors, therefore, may be satisfied that no apprehension need be entertained by them on that head. The advantage of following Mr. Wood's advice, in not making any alteration in the width of way, has been since most forcibly shown by recent experiments, which have entirely changed the results upon which the chief objections to the gauge were founded. The performance of the engines, shown by Mr. Wood's experiments in September, gave such a disproportionate result in their power upon the attainment of high velocities, as to render it all but impossible that the effect could be entirely produced by the action of the atmosphere of the trains. All doubts were shortly removed by his being ascertained that a different cause, a mere mechanical defect in the engine itself had been in operation. If Mr. Wood had witnessed these recent performances of the engines, he must unquestionably have changed his opinions as to the means and practicality of carrying full average loads at a high speed, without the great increased expense of fuel. The directors have satisfied themselves of this very important fact, by personally attending an experiment accompanied by several gentlemen, among whom was a very eminent practical mechanic, on which occasion the North Star took a train of carriages calculated for 160 passengers, and loaded to forty-three tons and from Maidenhead, at a mean average speed of thirty-eight miles per hour, the maximum being forty-five miles per hour, consuming only ninety-five or less than 1 lb. of coke per ton per mile, instead of 2.74, say 2½ lb. as previously ascertained. This was accomplished by a more altered proportion in the least size of the engine, in the manner explained by Mr. Brunel, being a simple enlargement of size in one of the parts which admits a more free escape of the steam from the cylinder after it has exerted its force on the piston, still preserving sufficient draft in the fire. It must be almost needless to point out to those who have perused the reports, how importantly this change bears upon the subject in almost every relation of the inquiry. It negatives the assumption that "velocity can only be attained by a ruinous loss of power." It establishes beyond doubt that the consumption of fuel as now ascertained in the proportion to the load is only one-third of that which from the former experiments had been the basis of Mr. Wood's arguments.

An analysis in the report of the performance of the Great Western engines, with heavy loads, varying from 30 tons to 100 tons, shows in every respect a peculiarly satisfactory result at a small cost of fuel, and warrants the expectation of very great benefit to the company from the economical transport of goods on the line. That the expenses of locomotive repairs, especially on that heavy class of repair which arises from lateral strains on the wheels and framing of the engines, have been materially less than on other lines submitted to the board by the superintendent of that department. The experience of some months has ever enabled the directors to witness the progressive improvement in the practical working of the railway. A higher rate of speed has been generally maintained than on other lines, and at the same time with that increased speed greater steadiness of motion has been found in the carriages, with consequent comfort to the passengers. If speed, security, and comfort were three great desiderata in the original institution of railway travelling, the directors feel sure that the public will appreciate and profit by any improvements in these qualities, the company deriving ample remuneration in the shape of increased traffic. A saving of time upon a long journey, with increased comfort, will necessarily attract to one line in preference to another. Any line which from beyond the ordinary distance of local connection, and will be a secure and valuable collateral trade which would not otherwise belong to it. It is also a decided reason to avert competition which may with much reason be regarded as the chief peril to which railway property is subjected. The directors, as an deliberate reconsideration of all the circumstances affecting the permanent success of the undertaking, directing the question of all personal partialities or oblique adherence to a system, unanimously acquiesce in the abandonment of the 7 feet gauge in favour of a greater width of timber, and of a heavier rail, including the width of gauge with the continuous timber bearings, as the most conducive to the general interests of the company. Their experience of the past leads them earnestly to express a hope that these deeply interesting questions being now determined, the good sense and the interests of the proprietors will induce them to forego the re-activation of such topics as can only tend to distract the energies of those on whom the execution of the works must devolve. The importance at this moment of the entire devotion of the time and devotion of the officers of the company cannot be overestimated, and the directors would in discharge their duty if they could most earnestly urge upon every individual to leave them unembarrassed in the execution of their arduous duties. The directors judge themselves that no personal exertion on their part shall be wanting to promote the interests of the proprietors, and that they will superintend and control the expenditure of the company with the utmost vigilance, affecting to practical economy in every department as alike essential to the stability of the undertaking, and to the pecuniary benefit of every individual proprietor.

Mr. RUSSELL GURNEY said, he, like many other proprietors, had hitherto rested satisfied with the general management of the directors, and had placed implicit confidence in their judgment. But it must have been felt by all that the time was at length arrived when some inquiry should take place into the truth of certain charges of mismanagement which had been very generally circulated. He had therefore satisfied himself by personal inquiry as to the truth of those charges. He had read all the proceedings, and these two reports, and had arrived at the conclusion that the confidence originally reposed in the directors was thoroughly well founded, and fully justified by the reasons they had advanced. If any

was arrived when the question must be set at rest, one way or another. If they had any regard for the good working of the railway—if they had any regard for their own interests, some decision should now be come to by the body of proprietors at large, and the directors should be apprised whether they possessed the confidence of the proprietors, and were supported by them in the views they had adopted. There were, he believed, now only two important matters in dispute—the width of gauge, and the continuous timber bearings. The late system adopted of continuous timber supports had been, on its first introduction, quite as violently assailed as the plan of the wide gauge. To prove that stone blocks were not so well calculated for the purposes of railways, he need only advert to the Dublin and Kingston Company, who had given up stone blocks on the ground that such expenses were entailed by their use as to render it impossible to continue their use. A similar result was to be found on the Ulster, the Croydon, and the Bolton and Bury Railways, the latter of which was under the superintendence of Mr. Hawkshaw, who in his report had not said one word upon the subject. Mr. Wood had recommended the adoption of the wooden blocks, and Mr. Hawkshaw, by his silence, must be supposed to be tacitly of the same opinion. With respect to the width of the gauge, he had to contend against the opinion of Mr. Hawkshaw, who recommended that the whole of the rails should be pulled up, and that the works should be commenced again. He had looked through Mr. Hawkshaw's report with great care and anxiety, but he could see no reason for his arriving at the conclusion he had done. Speed was the object of all railways, and that, in his opinion, could not be accomplished by the plan laid down by Mr. Hawkshaw. He had not only had to contend against the authority of Mr. Hawkshaw, but that of Mr. Wood, who had recommended a narrow gauge. Great advantages had been gained by the directors by the adoption of the wide gauge, and they would be foolish indeed if they now gave it up. Then, with respect to atmospheric resistance, that, it had been clearly shown, could be overcome by the consumption of a little more coke. One great objection against the wide gauge was the great expense it entailed on the company, but that expense having in a great measure been incurred already, very little would be saved by the adoption of the narrow gauge. It was said the wide gauge caused accidents—that he denied it *in toto*; for, if the causes of accidents on other railways were looked to, it would seem that those circumstances which had caused accidents on other lines had been attended with no danger on the Great Western. Upon a full review of the conduct of the directors, he thought they had observed a proper and sound course, and that they ought to be supported in it by the shareholders. As great mischief and injury arose to the property of the company by the frequent discussions that had taken place as to the course to be adopted in the further construction of the line, he should conclude by proposing the following resolution:—"That this report be approved and adopted; and that this meeting, being deeply sensible of the disastrous consequences that inevitably arise, by repeated discussions as to the course in future to be adopted, do request the directors to adhere to the principles they have laid down in their report, as most conducive to the interests of the proprietors."

Mr. HORSLEY seconded the resolution. That there might have been several little mishaps or unfortunate occurrences, which might have given pain to the directors, there could be no doubt; but he would submit whether it was possible for such a vast and gigantic undertaking as this was to go on at first as smooth and pleasant as could be wished? They must be prepared to expect a few mishaps and disappointments; but Mr. Brunel, the engineer, had, with great anxiety, endeavoured to find out what improvements on the line could be effected. Although some additional expense might be created by these improvements, he was certain the advantages that would accrue would more than correspond with the outlay. In conclusion, he trusted that this meeting would put all differences at rest, and that the company would go on with prosperity.

Mr. BRANDRETH thought it was rather inconvenient for them that Mr. Wood had not had time to finish the inquiry he had made. Mr. Wood was a personal friend of his, and for his opinion he entertained a high respect; but he must say that he wished Mr. Wood had distinguished his own opinions from those of others. He travelled on the Great Western Railway, and had had a conversation with the engineer, who told him he had now been five months in the employment of the company; that he had formerly been employed on the London and Birmingham; that he considered travelling on the Great Western was more pleasant and safe than travelling on the London and Birmingham; that he had been overtaken on the London and Birmingham, and his companion killed, but he considered that, with the seven-feet gauge on the Great Western, there was little fear of an upset. With respect to Mr. Wood, he would observe that his report was founded rather upon measures than experiment; and he, also (Mr. Brandreth) had, by the kindness of the directors, made some measures on the Great Western Railroad with respect to the expenditure of power, which was the great article they sold—how much was usefully expended, and how much went to waste. The great obstacle to high rates of speed was alleged to be the resistance of the atmosphere. He (Mr. Brandreth) did not think that Nature had opposed such a barrier to higher rates of speed as had been stated by Mr. Wood; and if he found that Mr. Brunel and others had gone at a greater speed without that great expenditure of power, he would be inclined to retrace his steps and go over the calculations upon which he had made his statements. Mr. Brandreth here entered into calculations of the experiments made by Mr. Wood on this subject, and contended that the resistance was greatly overestimated, and, instead of the resistance being in the proportion of five to one, it was only two to one. Indeed, it scarcely needed that to satisfy him, that it was extremely improbable Nature would have opposed so great a resistance to any speed higher than thirty-five or forty miles.

Mr. HAYWORTH said that, considering the great importance of the present subject to individuals and the company at large, he could not refrain from expressing his opinions, however they might differ from those of many present. He had travelled 200 miles for the purpose, if possible, of benefiting the public at large, and the proprietors at Bristol and London. He had no animosity against any individual; and as long as he believed that Mr. Brunel was acting upon scientific principles he had given him his support, and it was not until he found that he was in error that he opposed him. The errors into which that gentleman had fallen were not trifling to him (Mr. H.), for, according to his opinion, it had taken out of his pocket no less a sum than 70,000*l.* It had been said that those who took the same view that he did were mischievous. What had been the result of that mischief as it was called? Why the system of the piles had been abandoned, by which a saving of 4000*l.* a mile upon the seven miles from Maidenhead had actually been effected. The road to Maidenhead had cost 11,000*l.* per mile, whereas the seven miles beyond it would only cost 7000*l.*, being a saving of 4000*l.* per mile, which on the whole distance to Bristol would make a saving of 448,000*l.* Was that, he would ask, nothing? He contended that very great advantage had accrued to the public and the company by the dimensions that had taken place. Some of the gentlemen had complained of the expense of the construction of the Bolton and Bury line. It was true that line was expensive; he was one of the first subscribers to it, and when he found the engineer (not the present one) was so expensive in his outlay, he determined to sink all the money he had laid out in the purchase of shares, rather than have anything further to do with it; and he had never repeated of that determination. He would request every person to read Mr. Wood's report, and, when they had done so, he would venture to assert that they would come to the same conclusion he had done; namely, that it would be much better to suspend laying the rails on the wide gauge. He had not formed any judgment as to what the width of the gauge should be. Atmospheric resistance was to be overcome; and in order, if possible, to effect that object, it was necessary to ascertain what the amount of atmospheric pressure was before large sums were expended upon machinery and works that would not succeed. The worthy proprietor concluded by moving, as an amendment to the motion of Mr. Gurney, "That the reports of Mr. Wood and Mr. Hawkshaw contain sufficient evidence that the plans of construction pursued by Mr. Brunel are judicious, expensive, and ineffectual for their professed object, and ought not to be persevered in."

Mr. HOTES seconded the amendment. He thought there could be very little difficulty in adopting the reports of Mr. Wood and Mr. Hawkshaw, because they had been confirmed by every engineer in the kingdom, with the solitary exception of Mr. Brunel. They had hitherto pursued a plan which every body acknowledged to be bad. As regarded speed, he considered it to be a most extraordinary thing that, although the Great Western had now been six months in operation, a greater speed had not been attained on that line than on the Liverpool and Manchester.

Mr. BARRAGE said he had not merely looked at the undertaking in a mechanical point of view, but had looked at it with respect to its utility, and as regarded the ultimate profit. If other difficulties besides mechanical difficulties were put in the way, it would require a very comprehensive mind indeed to get over them, and, therefore, he always attributed higher skill, and gave greater praise, to him who happily got over the economical, than to him who overcame what were called mechanical difficulties. Mechanical difficulties, as he said, might be easily got over, but the question was at what cost? If the proprietors wished to have opinions, they ought to have the opinions of the men most eminent in the profession. They had heard that some eminent men had obtained from others their opinions, and they had assigned their

upon and could be supported by measures. With respect to the two reports before the meeting, he must say, in the first place, it had never come to his knowledge that Mr. Hawkshaw was an engineer. He was most unwilling to say anything of a gentleman that he was unacquainted with; but here was a report, and, in the face of it, he would say that it was utterly unfit for their guidance. There was such a want of those principles in the report, which ought to guide a scientific man, that would induce him (Mr. Babbage) to throw it overboard altogether. With respect to the atmospheric resistance, about which so much had been said, nobody ever heard of its being taken into calculation before. The laws of the resistance of the atmosphere to bodies moving through it had been long since ascertained, and these laws—like other laws of Nature—were immutable. The resistance was as to the square of the velocity. He would now say a word with respect to the performance of the engines, and he would first refer to Mr. Hawkshaw, who had himself constructed a railway. He would probably consider that what he had done on that line was right. Mr. Hawkshaw's railway was one of the most expensive in the kingdom, for it had cost 65,000*l.* per mile. Mr. Hawkshaw had also adopted the continuous bearings on his line, and it was known that the gradients of that line were extremely bad. Mr. Hawkshaw reported that on that railway the speed was 23 3-10 miles per hour, with a load of 22 tons, and a consumption of 1 1-16th lb. of coke per ton per mile; while, by the performance on the Great Western Railway, at somewhat greater speed, 25 3-10 miles per hour, it carried 156 tons, being within a fraction of seven times the quantity of goods, while the consumption of coke per ton per hour was less. To do the same work it would require seven engines, with engineers, stokers, &c., on the Manchester and Bolton line. The consumption of coke by the North Star, doing that enormous work, was only three-tenths of a pound of coke per ton, or one-fourth of the quantity consumed on the Manchester and Bolton line. Would the proprietors advocate the building of seven engines instead of one? Would not the effect of that enormous power give the Great Western line a complete monopoly for the carriage of every pound of goods that might be sent in that direction? Comparing that speed with what had been done on the Grand Junction Railway, it appeared that the same speed was attained by the engines then carrying thirty-nine tons, and consuming 1 3-16th lb. of coke per ton per mile; being nearly one-fourth the quantity carried by the North Star engine. With respect to the vibration, he would observe, that he had devised three instruments for the purpose of ascertaining the extent of the oscillations of the engines upon the railway, and had also tried that of Mr. Wood, and the result of his experiments convinced him that none of those oscillating instruments are at all to be depended upon. Under all the circumstances, his advice to the directors was to persevere in the course they had adopted, and to the proprietors that they suffer Mr. Brunel and the directors to apply their best energies to their task uninterrupted by any further objections, such as those which had proved so prejudicial to the company.

Mr. ENGLAND said, he could not pretend to understand the amount of atmospheric resistance at given velocities; but this he was quite sure of—that any one who had walked out during the storms of Sunday and Monday, must be quite aware that there was a great difference in the capability of his walking with or against the wind. Instead of all this disagreement, he should like to see, if it should become practicable under the Act of Parliament, that some of the Liverpool gentlemen should be placed on the Bristol and London directory. He objected to any more experiments being made, as only calculated to occasion expense and delay.

The CHAIRMAN regretted that any amendment should be considered necessary, but the altered tone of the discussion showed that at last they were approaching to something like unanimity. They were all aware of the circumstances which led to the employment of Mr. Hawkshaw and Mr. Wood, but he must say that their reports left the matter much where it was; for no one could say that they offered the slightest pretext for inducing the directors to adopt the recommendation of Mr. Hawkshaw. Great stress had been laid upon atmospheric resistance, but Mr. Wood's opinions upon that subject were of a nature far too startling to be implicitly received by that meeting.

Mr. PIERCE thought Mr. Hawkshaw had been most unfairly dealt with, for he had only one month to make out his report, while Mr. Wood had six months.

Mr. BAKER said, that Mr. Hawkshaw's opinion was not entitled to any great weight, for he had been only a draughtsman in an office at Liverpool. Dr. CARPENTER said, that certainly the opinions of Mr. Wood were startling beyond measure with respect to atmospheric pressure, for if they were correct, there was an end to the velocity of forty miles an hour on the broad gauge. But what was the fact? Mr. Brunel and the directors had made the experiment, and had actually accomplished forty miles an hour without any great increase of expenditure, and he was, therefore, inclined to lay much less stress on Mr. Wood's report than he should if Mr. Wood himself had made the experiments. He had never attended one of the meetings of the company until this agitation arose, and he then felt it to be his duty to hear both sides. He had done so, and he must say, that the more he had examined the more he had his confidence in Mr. Brunel increased. His confidence was heretofore in the directors, now it was in the directors and Mr. Brunel. After what had fallen from Mr. Babbage, he trusted Mr. Hayworth would withdraw his amendment. He appealed to him to consider, and not suffer their shares to be run down for no other reason than because they were not united; when the mere withdrawal of his motion would be hailed as a peace-offering, calculated to be beneficial to them all.

Mr. BRUNEL observed, that the whole groundwork of Mr. Hayworth's objection to his plan seemed to be the atmospheric resistance, which had really become of ludicrous importance. He was not surprised that Mr. Babbage and other gentlemen had not entered much upon this, for they were not bound to fight with ghosts; but for himself, being a sort of servant of all work, he must be supposed to meet the objection. This atmospheric pressure had in fact become a bugbear; but he must honestly tell the meeting that he looked upon all that had been said upon the subject as mere humbug. The effect of atmospheric pressure had been known for more than seventy years, and of course was foreseen. In fact, he had given instructions to the engineers, in the first instance, to make the engines round in front, with the view of avoiding this atmospheric pressure as far as possible. There was nothing new in this; any one would have done it who wanted to go fast, and he, therefore, claimed no merit for those instructions; but it proved that he, as well as other engineers, always took this resistance into their calculations. It was a matter, however, not of very great moment where only twenty-five miles an hour were to be accomplished; but he admitted it was of consequence if they desired a speed of forty or fifty miles an hour; but the directors had actually accomplished forty miles an hour, which set the question at rest. Mr. Hayworth said he had saved 70,000*l.*, and the directors 448,000*l.*, by his having caused the abandonment of one portion of the plan—namely, that of piles and gradients. Now, this was not the case. The piles were abandoned on the seven miles beyond Maidenhead, because it was impossible to use them, the ground being chalk, and the whole additional expense caused by them, and the gradients would be covered by about 40,000*l.* The fact was, that Mr. Hawkshaw, who had praised these gradients, had so enlarged upon the expense, without stating any particulars, that he left an impression that it would be enormous.

Mr. HAYWORTH said, that what had fallen from Mr. Brunel, so far from removing, had actually confirmed all his previous opinions. Other engineers had estimated the cost of those gradients at no less than 20,000*l.* per mile.

Mr. SWIFT said, his vote should be governed by the reports of the two engineers employed by the directors, one of whom recommended that the present plan should be abandoned altogether, and the other of whom said that no advantages had been or could be gained, commensurate with the expenses which the plan incurred.

The CHAIRMAN then put the amendment, which was lost by an immense majority, only ten or twelve hands being held up in its support.

Mr. HAYWORTH said, the question was one of such importance that he should demand a poll.

Mr. GURNEY wished to ask if it was true that certain proprietors had been splitting shares for the purpose of obtaining a majority on this subject? Mr. SWIFT—I have said nothing of the kind.

Mr. GURNEY—I ask if Mr. Hayworth and Mr. Cresswell have not done so?

Mr. HAYWORTH—I will answer that question if it is legally asked.

The CHAIRMAN—The question cannot be legally asked.

Mr. GURNEY—No matter. The refusal to answer is quite sufficient.

Mr. HAYES—Has your secretary been soliciting proxies?

The SECRETARY said, he had solicited proxies, but not until after he had ascertained the adopting of the system of splitting shares. Deeply interested as he was in the company, perhaps more deeply than any gentleman in that room, he felt he had the right to ask for proxies when his only object was the benefit of the company.

Dr. CARPENTER said, when the Bristol directors were applied to, they at once stated that they had not split their shares.

The CHAIRMAN said, the London directors had not split their shares, and would not, he felt confident, resort to any such measure.

Several gentlemen here entreated Mr. Hayworth to withdraw his amendment, but in vain, and the poll was accordingly commenced. It was finally arranged that the poll should be adjourned until ten o'clock on Thursday, and that it should close at twelve o'clock.

The balloting was resumed on Thursday morning at ten o'clock, and continued until twelve o'clock. Shortly afterwards the CHAIRMAN stated that the ballot was closed, and the scrutineers would shortly announce the result. The scrutineers were—Mr. Ward, for the London and Bristol proprietors

MAN said, the scrutineers had made their report on the amendment. The secretary would read that amendment and the numbers.

The SECRETARY then read the amendment, as follows:—"That the reports of Mr. Wood and Mr. Hawkshaw contain sufficient evidence that the plans of construction pursued by Mr. Brunel are injudicious, expensive, and ineffectual for the proposed object, and ought not to be persevered in."

The amendment was lost, the numbers being—

FOR THE AMENDMENT.	
Present	178
Proxies	5969-6143
AGAINST THE AMENDMENT.	
Present	1994
Proxies	5908-7792

Majority against the amendment 1647

This announcement was received with loud cheers.

The CHAIRMAN then put the original motion as follows:—"That the reports of the directors be approved and adopted, and that this meeting do request the directors to adhere to the principles laid down in the report, as most conducive to the permanent welfare of the company," which was carried *sem. reg.*, amidst loud cheers.

Mr. B. HAWES, M.P., proposed that the warm and cordial thanks of this meeting be given to the board of directors for their zealous attention to the interests of the proprietors. The hon. member said he wished, on behalf of Mr. Brunel, to state he had not made any observations from personal feeling towards any gentlemen.

A vote of thanks was then given to the directors and the chairman, who returned thanks, and assured the proprietors that their best abilities should be exerted to promote the interest and prosperity of the company. The meeting then separated.

MINING COMPANY OF IRELAND.

A meeting of the directors and members of this company was held on Thursday, the 3d inst., at the Commercial-buildings, Dublin, for the purpose of receiving the report for the half-year ending 1st December, 1838.

JOHN O'NEILL, Esq., in the chair.

Mr. PUNBY, the secretary, having read the advertisement by which the meeting was convened, the proceedings of the last meeting were entered on the minutes as read.

The SECRETARY then read the report, of which the following is an extract:—

"The board, in reporting the progress made in the affairs of this company in the past half-year, has the satisfaction to announce an increase in the amount of the profits; a decrease in the amount of unproductive expenditure, and a considerable reduction in the amount of the company's liabilities. The profits amount to 11,799l. 2s., of which 9182l. 5s. 9d. has been applied in opening Derrynosa, Calne, Killohane, and Hollyford (Ballinacode) mines, and in permanent improvements; and the company's liabilities have been reduced 11,667l. 11s. 4d."

After detailing the further proceedings of the company, the report contains the following paragraph:—

"Having thus set forth the result of the company's works in the past half-year, and the present prospects of the several concerns, your board has only further to recommend that a dividend be declared for the last half-year ended, at the rate of 10 per cent. per annum, and that the same be payable on and after the 1st of March next."

A resolution was passed to the effect that the report be received, entered on the minutes, and that 500 copies of it be printed, published, and circulated among the proprietors.

Mr. JAMES PIM suggested, that after the dividend of 10 per cent. was paid, that any surplus beyond that amount of dividend should be laid aside, for the purpose of ensuring the stability of the company's future operations.

Mr. PERRY concurred in Mr. Pim's views, and congratulated the meeting upon the favourable state of the copper mines in the county of Waterford, which he had lately visited. He walked several miles underground, and was struck with the quantities of ore he had seen. The manager of the mines informed him that he could raise a much larger quantity, but that he preferred not doing so until the mines were in such a state that a proportionately large quantity could be permanently raised.

Mr. PIM asked whether it was the intention of the directors to continue the operations in the slate quarries, which were so expensive to the company, and involved such a multiplicity of the valuable time of their officers, who could be much better employed in other matters, that he did not think them worth the time and expense laid out on them.

The CHAIRMAN said the expenses were considerably reduced. The company had established a market and a character for this commodity, and after going through all the difficulty attendant upon doing so, which he conceived to be adequate to the loss sustained, he thought it would be imprudent to relinquish them now.

Mr. GUINNESS differed from Mr. Pim, and looked upon the slate quarries as a most valuable adjunct to the mines. He hoped to see the day when there would not be a thatched cabin in Ireland; and when he reflected upon the extent of employment which they afforded to the poor, he looked upon them as a very great advantage to the country. The great liability of thatched houses to fire, together with the circumstance of the ground being robbed by the thatch put upon their houses, rendered slates doubly advantageous. He would not let his patriotism go too far; but he would consent to lose 1000l. a-year sooner than abandon the slate quarries.

Several of the members coincided in Mr. Guinness's opinions.

Thanks were then voted to the chairman, and the meeting adjourned.

VICTORIA IRON WORKS, LOWER EREW VALL.—On Tuesday, being New-year's-day, the large engine for blowing the blast furnace was started for the first time. It has been constructed at Neath Abbey, and a beautiful piece of machinery and display of science we understand it is. The blowing cylinder is the largest in Monmouthshire, and equal to the largest in Glamorganshire, being 122 inches in diameter. The "make" of iron by this company has not been very great, as it appears to have been their design during the short time their furnaces have been in operation, rather to arrive at superiority of quality, and in which we learn that they have been eminently successful. It is expected that they will soon get another furnace in blast owing to the great auxiliary which the company now have, and the considerable increase of mine and coal which their "workings" daily afford them.—*Monmouthshire Merlin.*

CONSTRUCTION OF RAILWAYS.—In appearance the railroad is but two sets of parallel iron rails, bright with friction, and raised a little above the ground. As far as the eye can reach it continues as level as a floor; but much more of art must exist than is apparent; and a great firmness of structure is requisite to sustain the ponderous machines which pass with such velocity over those small bars. The width on which the rails are laid down is between thirty and forty feet. The rail now used is termed an edge rail and causes but little friction, from the smallness of the surface presented to the tire. It is made in fifteen feet lengths with a flange, curving from the middle to the sides, and much heavier than at first. The original rails on the Liverpool and Manchester Railway were 35 lb. per yard, but rails of above double that weight were substituted. But besides the difference in the size and weight, a difference has also been made in the shape of the rail. The old sort is called the "fish-bellied" rail, from its bulging out in the middle; the new rails are termed parallel rails, and are of the same thickness all through. They were introduced by Professor Barlow. Cast-iron is now wholly discarded, and malleable iron which has been rolled is substituted. The cost of the rails on the Birmingham Railway was 400,000l., and their weight 35,000 tons. The rail is attached to the block or sleeper, by means of what is called a chair, usually made of cast-iron, and about nine inches in length, having an upright socket in which the rail is fixed, by an iron wedge, called a key. The chairs on the Liverpool and Manchester Railway are fourteen inches long and six inches wide, having six perforations, two for securing the chair to the stone, and four for securing the rail, with screwbolts and nuts. When a wooden block is used it is called a sleeper, and a square of felt is placed between it and the chair. The pieces of felt used in a mile are 7840. The stone blocks are usually of granite, and are chiefly used on embankments or cuttings; they are usually four cubic feet. On the Birmingham Railway they are set diagonally, three feet apart. On some railways the blocks are placed in a contiguous line, and bound together by iron ties. On others they are imbedded on brick sleepers, and without any ties. The blocks on the London and Birmingham Railway weigh 152,000 tons, and cost 150,000l. The wooden sleepers are usually of larch, fir, or oak, about nine inches wide, six feet long, and five inches thick. They are placed across the line about three feet apart and the chairs are spiked down to them. They are used altogether instead of stone on some railways; but they are subject to decay.—*Gilbert's Railways of England and Wales.*

ORIGINAL CORRESPONDENCE.

CORNISH STEAM-ENGINE IN LONDON.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Observing in your last week's Journal a letter upon the subject of a Cornish Pumping Engine lately erected and set to work at the East London Water-works, under my superintendence, in which there are some inaccuracies, I beg leave to lay before you the following facts.

The engine, although "started," has not been regularly at work, nor will it be at present, it having been found necessary in this case, as in most others where new machinery has been erected, to make many adjustments. It is intended to work the engine eight strokes per minute; the diameter of the plunger pole is forty-one inches, as stated by your correspondent; and the column of water under which it will work is intended eventually to be 130 feet—the load, therefore, will be 74,490 lbs. The quantity of water discharged per minute will be upwards of 3800 imperial gallons. The engine, there is no doubt, is capable of doing half as much again as here stated, but the saving in fuel would be diminished, nor would it be advisable to work her at such a speed.

I do not understand what your correspondent means, by stating that "one" Cornish engine is equal to "three" engines of the common construction, of "equal diameter." Not only the diameter of the cylinder, but the length and number of strokes, and the pressure of steam, must be considered in any calculation of power. The engine in question (cylinder eighty inches diameter), working eight strokes per minute, will be equal to about 170-horse power, while our present engine (cylinder sixty inches diameter), working fifteen strokes per minute, is equal to about 100-horse power.

I feel so desirous of proving the superiority of the Cornish engine over any other engines for pumping water, and other purposes, that I should be sorry if any inaccuracies respecting the first engine erected upon this principle in London should be allowed to appear in the public journals. I hope to be able in a very short time to give full particulars of this engine to the public, together with a statement of the duty done; in the mean time I beg leave to say that I am as certain as I have hitherto been of being able to establish beyond doubt its great superiority.

The other statements of your correspondent, who seems to be a staunch supporter of the Cornish system, are, as far as I know, correct; and I am very glad to find that this most important subject is attracting more attention than heretofore, out of the county of Cornwall.

In conclusion, I cannot help saying that, although I have the highest respect for the abilities, talent, and sterling honesty of my friend, Mr. West, whose boilers are, in my opinion, superior to any other I am acquainted with, I am, nevertheless, certain he would have preferred seeing his name connected with his professional brethren in the county, to so many of whom, jointly with himself, the credit of having brought the Cornish engine to its present unrivalled position is due.

I am, Sir, your obedient servant,

East London Water-works, JOHN WICKSTEED,
Oldford, Jan. 8. Eng. to the East London Water-works.

[The letter alluded to, although correct in the main, was written in too ostentatious a style, which we are pleased to find corrected by Mr. Wicksteed.—Ed. M. J.]

WEST TREASAVAN MINING COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—Will you give me leave to ask the names of the managers of the West Treasavan Copper Mine, and where is their office or place of business, if you know them? Having commissioned a friend to inquire, who reports that he can gain no intelligence! A call of 10s. per share was made some time since, and another was notified for last year; they, however, give no account of receipt or expenditure—or if they have, the writer has not received any, nor has any been published in your useful and valuable Mining Journal. Any information which you can favour me with will much oblige

Yours, most respectfully,

London, Jan. 8. A SHAREHOLDER.

P.S. Your exposure of the conduct of the West Cork Mining Company was truly acceptable; and if your attention were drawn to the procedure of the West Treasavan Company it would be of great service, and thankfully received, as the former was.

[We trust that the required information will be furnished to our correspondent by some of the parties having the management of affairs, otherwise we shall endeavour to obtain it for him.—Ed. M. J.]

SWISS ASPHALTE COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—I request the favour of your inserting in your valuable Journal, a few lines in answer to a letter from Mr. John Bailly, 37, Fenchurch-street, auditor of the above. For although Mr. Bailly now denies that he is an auditor, he cannot so easily get rid of his responsibility; did he not consider himself bound to make, immediately after the publication of the prospectus, a denial or renunciation of his character as auditor, as publicly as he now does after the money has been paid on the faith of the representations made in the prospectus? Sir, the fact of Mr. Bailly's being or not an auditor, would have been of no moment; but a knowledge that he or any other name had been used without authority, would have thrown such a degree of merited suspicion upon the whole concern, as would have prevented the payment of the deposit.

The money, however, has been obtained from the public, and now when shareholders seek for some account of how it has been appropriated, one of the auditors, whose duty it is to audit the accounts and give an account of the property, comes forward to repudiate his duty and escape from responsibility, throwing the onus upon his partner, Mr. Anichini, from whose "honourable character" he does not doubt the account will be willingly rendered. Sir, no signs of it yet appear.

John's Coffee-house. W. R. CHAMBERLAIN.

CARRIGAN CONSOLIDATED TIN MINING COMPANY.

TO THE EDITOR OF THE MINING JOURNAL.

SIR,—In your Journal of last week you have inserted a letter relating to the proceedings of this company, at which I felt some degree of surprise, because I believe it is not your general practice to interfere with private companies; but as the object of your correspondent is evidently to prejudice the public mind against the measure a large majority of the proprietors have thought best adapted to promote its success, I must request that you will, with your usual impartiality, insert the following statement.

The meeting to which your correspondent alludes, was called to take into consideration the best method of raising a further capital for the effectual working of the mine—a notice sufficiently comprehensive. The committee had the power to make calls, but in consequence of the great difficulty in getting the shareholders to respond to them, and the division of opinion that existed among them as to the policy of making any further call, they very wisely determined upon leaving it an open question, for the proprietors to deal with in that way which was most congenial with their own feelings; the result of which was, that your correspondent proposed a call, which was successfully resisted by a very large majority of the shareholders, and the amendment, "to issue 500 new shares, at 5s. per share," was carried by a majority of 145 votes. The company consisted of 1000 shares, each share having one vote: 479 votes supported the amendment, and 334 against it—making a total of 813 shares represented—yet your correspondent would lead you to believe nearly all the proprietors had left the room; besides which, several parties holding to the extent of sixty or eighty shares, have since the meeting (they not being able to attend) sent in their request to the committee to insert their names, as fully approving the spirit and intention of the amendment.

One word, Sir, as to the legality of the proceedings. We are not governed by a deed, nor by an Act of Parliament, neither are we incorporated; we have a few rules and regulations (which have been approved of by the proprietors) for our guide. The same power that made them can alter and amend them—indeed, they have been repeatedly altered and amended. We are a body of partners, and, as in all other companies, the majority decide all questions relating to the interest of the association.

As to the policy of this measure, it must be obvious to every person acquainted with this description of property, that if a capital can be raised in this way to prosecute the undertaking with vigour, it is far preferable to pressing for calls upon an unwilling proprietary, the tendency of which must evidently be to depreciate the property, by compelling some parties to dispose of it at any price, while others would refuse to buy—and it is notorious that we have no power to forbid shares. But there was also another motive why we considered it expedient to press this proposition,

which was, that if a call had been made, it was more than probable that the two leading members of the committee, Messrs. Read and Heall, would have resigned, from a determination no longer to continue their responsibilities, unless funds sufficient for carrying on the undertaking were at once placed at their disposal, which would have been to a great extent an uncertainty, had a call been made. To those gentlemen we are largely indebted for their exertions (gratuitously given), and no proprietor, I think, but would have regretted such a result.

As to the success of the measure, I have no doubt but it will be complete; nearly 400 of the new shares are already subscribed for by the present shareholders, and it is not improbable but the remaining portion will be taken by them. That the tendency of the measure will be the salvation of the concern, and raise the property in public estimation, I have not the slightest doubt, whilst, if the former proposition had been carried, it would have deteriorated the property, and risked the very existence of the concern. Being, Sir, the mover of the amendment, I am gratified to find so large a proportion of the shareholders have taken the same view of the question as I have done.

By the terms of the resolution passed, every proprietor is entitled to his proportion of the new shares, therefore, if the advocates for a call come forward and subscribe for their proportion, their interest will remain precisely the same. Trusting you will insert this in your next Journal.

I remain, Sir, your obedient servant,

THOMAS SMITH.

Goswell-street, Jan. 10.

TO THE UNREGISTERED SHAREHOLDERS IN THE ANTI DRY-ROT COMPANY.

GENTLEMEN,—The observations I am about to make were suggested on perusing a letter in this paper last week, from a proprietor of registered shares in the Anti Dry-rot Company; the arguments contained in that letter were so at variance with justice, that I have felt it my duty, as a proprietor of unregistered shares in the same company, to lay before you, as far as I am able, a correct and fair view of this most unfortunate and complicated case. Now, in the first place, it must be obvious to all unprejudiced parties, that it would be an act of the grossest injustice to make the proprietors of unregistered shares the sole sufferers for the unpardonable and unaccountable want of caution of the directors. I, for one, bought my shares upon a conviction of the merits of the company—and it is my property to be sacrificed because the directors suffered one of their body to reissue those shares which ought at once to have been cancelled? The fault is attributable to their neglect, and they ought, at all events, to be joint sufferers. We must, however, if necessary, base our claim upon law, and not upon justice alone; I will therefore now proceed to examine how far the law will bear us out. Being myself an interested party, I have been at some pains to arrive at the true state of the case, and I have much pleasure in stating my decided conviction, that it would be as impossible, as it would be manifestly unjust, for the directors to refuse to admit the holders of scrip upon an equal footing with the other proprietors; it is no doubt very mortifying to the directors to see their property so much depreciated in value, but their wisest course is evidently to bear the loss with a good grace, and profit by past experience. I will, however, proceed to refute one or two of the arguments put forward in the letter above alluded to;—in the first place it is stated that the scrip shares became void from the fact of their being registered—to this there are two objections—the first of which is, that the directors have no proof that the outstanding scrip ever was registered; and even supposing them possessed of such proof, the fact of shares having been registered does not cancel the obligation of the directors no more than the payment of a bill would release the acceptor from his liability, unless the bill were actually cancelled. The writer of the letter above alluded to would have us suppose that the scrip itself was at no time valid till registered; let him, however, not lay "that flattering unction to his soul," for it is notorious that the scrip obtained a better price in the market than the registered shares, for as there was no obligation to register (no deed having been signed to that effect), the unregistered shares entailed of course less responsibility. With respect to the assertion, that the majority of the scrip is held by members of the Stock Exchange, I believe it to be quite erroneous; but at all events it has nothing to do with the merits of the case, and it is exceedingly unfair to stigmatise them for neglect which they could neither have foreseen or prevented; indeed, allowing the writer of this letter the full benefit of his argument, the members of the Stock Exchange would (if what he says be true) be more deserving of pity than blame; for if they are the largest holders of scrip, they must necessarily be the largest sufferers. The defence of the directors seems to me particularly ill-timed, for had they paid the most ordinary attention to the affairs of the company, a fraud of such magnitude could never have taken place. It is true that the certificates do not bear the signatures, but they must bear the seal of the company, and common prudence would, I think, have dictated that before affixing it they should have satisfied themselves that the scrip was either cancelled or secured. The assertion that the scrip confers no title is too ridiculous to require refutation. Why, for what purpose was it issued? Not only does it confer a title, but a title which the directors must be aware it is impossible to resist.

In conclusion, I have only to express a hope that at the coming meeting, the directors, with the advice of the committee, will decide upon following that course which both law and justice suggest, and admit the scrip proprietors to register their shares. At all events, I, for one, will admit of no compromise, and will contest the point to the utmost, and I feel convinced that in thus proceeding I shall have your cordial support.

I remain, gentlemen, your obedient servant,

London, Jan. 9.

JUSTITIA.

BUTE SHIP-CANAL.

The following account of this magnificent undertaking appears in the "Companion to the Almanack" for 1839:—

This important work, which has been in progress for several years, is drawing rapidly towards completion. It is generally known that the river Taff, which falls into the sea at the port of Cardiff, forms a principal outlet for the mining districts which compose the extensive basin of Glamorganshire. The produce of these mines has hitherto found its way into market through the Glamorganshire Canal and Sea Lock, constructed about forty years ago, which has long been found inadequate to meet the demands for increased accommodation consequent upon the extraordinary increase of trade which has taken place since the canal was opened, some idea of which may be formed from the fact that, according to the canal company's report, 108,234 tons of iron and 326,071 tons of coal were sent down in 1837, making a total of 340,900 tons, or above 1100 tons per day.

The Marquis of Bute—possessing the lands in the neighbourhood of Cardiff, and especially an extensive piece of level ground, commonly called "Cardiff Moor," where docks, wharfs, and warehouses might be constructed to an unlimited extent, and a convenient outlet made into the well-known safe anchorage protected by the headland of Penarth—obtained an act in 1830 for constructing a new harbour, &c., to be called the Bute Ship Canal, and has carried on and nearly completed this great work at his sole and individual expense. The principal features of the undertaking are as follow:—A straight, open channel, about three-fourths of a mile in length, from the middle of Cardiff Roads to the sea gates, which are forty-five feet wide, with a depth of seventeen feet at high water, and thirty-two feet at springs. On passing the sea gates, vessels will enter a small basin, having an area of about an acre and a half, called the water basin, calculated for the accumulation of vessels of great tonnage and steamers. The main entrance lock is situated at the north end of the water basin, is 150 feet long and 60 feet wide, being thus sufficient for the admission of ships of from 300 to 500 tons burden. The large sea gates and water basin are almost completed, and the lock, with its gates, &c., has been finished for some time.

Beyond the lock is the inner basin, which constitutes the principal feature of this work. It extends in a continuous line from the lock to near the town of Cardiff, 1400 yards in length and 200 feet in width; and, consequently, possessing an area of above eighteen acres of water surface, capable of accommodating 300 vessels of all classes, according to the moderate computation of seventeen ships to an acre. Quay walls are built on each side of the basin for more than two-thirds of its length, finished with a strong granite coping, and comprising in all nearly 600 feet, or more than a mile, of wharves, with ample accommodation for warehouses, exclusive of the wharves of the water basin, and other conveniences. The dock is now completed and filled with water; and the long, straight lines of quay walls, and the regular disposition of their wooden defenders, give the whole work a very noble appearance.

For the purpose of keeping the entrance channel clear of any deposit, which might be formed by the action of the sea on the soft mud lands surrounding it, a water-course or feeder has been made from the river Taff, leading to a reservoir, fifteen acres in extent, adjacent to the basin. The contents of this reservoir will be discharged at low water of every tide by means of openings of sluices and iron pipes provided for the purpose, and it is expected will be sufficient to keep the channel effectually open.

These appears every probability of the dock being completed, and open for the admission of ships, about the middle of 1839.

PUBLIC COMPANIES.

MEETINGS.

MARYPORT AND CARLISLE RAILWAY.—Notice is hereby given, that, in pursuance of the act of incorporation, the HALF-YEARLY MEETING of the Maryport and Carlisle Railway Company will be held at the house of John Glegg, Asquith, on Tuesday, the 12th day of February next, at Twelve o'clock at noon.

PRESTON AND WYRE RAILWAY AND HARBOUR COMPANY.—Incorporated by Act of Parliament.—Take Notice, that an ADJOURNED HALF-YEARLY GENERAL MEETING of the Proprietors of the Company will be held at the Company's Office, 11, King William-street, in the City of London, on Monday, the 21st inst., at One o'clock, when six of the present directors will go out of office, but will be eligible to be re-elected.

BRITISH SILVER, LEAD, and COPPER MINING COMPANY.—Notice is hereby given, that the ADJOURNED MEETING of the shareholders of this company, which was to have been held at the Clarence Rooms, Liverpool, on the 14th inst., is unavoidably POSTPONED for the present, to give time for consideration, whether it would not be better to hold it in the month of April, in accordance with the regulations of the prospectus.

CANDONGA MINING ASSOCIATION—A HALF-YEARLY GENERAL MEETING of proprietors of the Candonga Mining Association will be held at the office of the Association, 9, Nicholas-lane, King William-street, on Thursday, the 31st day of January, current, at One of the clock in the afternoon precisely, to receive the half-yearly report of the directors.

GREAT WHEAL CHARLOTTE MINING ASSOCIATION.—Notice is hereby given, that a SPECIAL GENERAL MEETING of the shareholders of the Great Wheal Charlotte Mining Association will be held at the office of the Association, 9, Nicholas-lane, King William-street, on Monday, the 21st inst., at One o'clock, for the purpose of receiving a Report upon the present state of the Mine, and for providing further Funds for carrying into effect the recommendations therein.—19, Lawrence Pountney-hill, Jan. 11.

UNITED MEXICAN MINING ASSOCIATION.—Notice is hereby given, that a HALF-YEARLY GENERAL MEETING of proprietors of this Association will be held at the London Tavern, Bishopsgate-street, on Wednesday, the 20th inst., at One o'clock precisely.

WHEAL HENNOCK AND CHRISTOWE MINING COMPANY.—The directors hereby give notice, that the SPECIAL GENERAL MEETING of the shareholders advertised to take place on the 20th inst., is POSTPONED until Thursday, the 17th January, 1859, at 12 o'clock precisely.

CALLS.

GWINEAR MINING COMPANY.—Notice is hereby given, that the directors have come to the resolution of making a further CALL on the proprietors of ONE POUND per share, according to the power vested in them by the prospectus, which Call of One Pound per share is to be paid to the bankers of the company, Messrs. Barnett, Hoares, and Co., No. 62, Lombard-street, on or before Saturday, the 19th of January.—N.B. The shares on which the previous calls have not been paid are forfeited.

COMBARTON AND NORTH DEVON LEAD and SILVER MINES.—At a Meeting of the directors in the above concerns, held at the King's Arms Hotel, Combarton, on the 24th day of January, 1859, it was resolved, "That all shares on which the last call of Twenty Shillings per share has not been paid on or before the 24th day of February next, be absolutely and irrevocably FORFEITED; and that the secretary is hereby empowered to strike them off accordingly without any further notice."

TRELEIGH CONSOLIDATED MINING COMPANY.—Notice is hereby given, that the period for the payment of the Eighth Instalment of Seven Shillings and Sixpence per share having expired, all shares upon which the said instalment shall not be paid to the bankers of the company, Messrs. Vere, Sapse, and Co., on or before the 21st inst., will be irrevocably FORFEITED, without further notice. The proprietors are requested to bring the scrip, together with the bankers' receipts, to the office, in order to be exchanged for new certificates, representing the sum of £4 2s. paid, thus enabling the directors to advertise the number of shares into which the company will be divided.

WHEAL WALLIS MINING COMPANY.—Notice is hereby given, that the Directors of the above Mine have this day made a CALL of TEN SHILLINGS per share, to be paid into the Manchester and Liverpool District Bank, on or before the 21st day of January, 1859. The Secretary is empowered to endorse the scrip on production of the bankers' receipt.

DIVIDENDS.

CONSOLIDATED COPPER MINES OF COBRE ASSOCIATION.—Notice is hereby given, that a DIVIDEND OF TWO POUNDS per share will be paid to the holders of certificates in this company, at the office of the Association, 26, Austin-frs, on and after the 15th day of January next, between the hours of Eleven and Three o'clock. The proprietors are requested to leave their certificates at the office for examination three clear days before the day of payment.

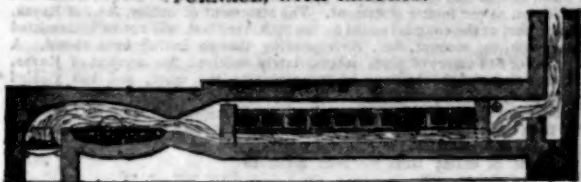
PUBLIC COMPANIES.

MEETINGS.

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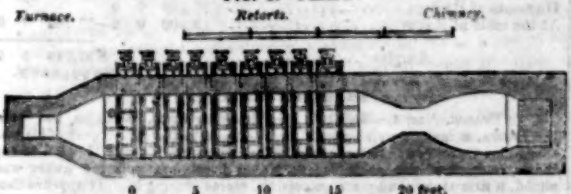
THE NEW MODE OF PRODUCING WROUGHT OR MALLE-
ABLE IRON DIRECT FROM THE ORE.

PATENTED BY MR. WILLIAM N. CLAY.

FIG. 1.—LONGITUDINAL SECTION OF BALLING AND PILING
FURNACE, WITH RETORTS.

The retorts are covered with a layer of sand.

FIG. 2.—PLAN.

FIG. 3.—TRANSVERSE SECTION OF RETORTS AND HORIZON-
TAL FLUES.

The O are small apertures to allow a portion of the flame to pass over the top of the retorts. The retorts may be increased or diminished, as the waste heat is greater or less.



REMARKS BY THE PATENTEE.

Iron is popularly divided into two descriptions, cast and wrought. Cast, or pig iron, is principally a combination of the metal with carbon, which it absorbs from the coke or charcoal of the blast furnace. Wrought iron has been hitherto produced by freeing cast iron from the carbon, &c., with which it is combined: the nearer it approaches a state of purity, the better wrought or malleable iron will it be.

The richer ores of iron contain the metal combined with oxygen; if that oxygen were separated, the metal would be in its malleable state as wrought iron.

And yet, the advance of science has left this great branch of our national prosperity so far behind, as to suffer the manufacturer still to continue the practice of impregnating the iron with carbon in the first instance, which carbon must afterwards be separated, by tedious and expensive processes, to produce wrought iron of good quality.

But there are other evils in the common mode. It is necessary for the manufacturer to have a sort of glass floating on the molten iron at the bottom of his furnace, to prevent the oxidation of the recently produced metal by the blast. This glass is formed from the earths with which the ores of iron are mixed, and limestone to flux those earths: so that ores of a very superior quality cannot be used by themselves, but only in part, to enrich such poor ores as have more earths combined with them than are necessary for their own fusion. Thus it is that the hematites, and other rich ores, found abundantly in Lancashire, Cumberland, Cornwall, &c., reach no higher a marketable value at the place of their production than the common earthy ores of the coal districts, although they contain twice as much iron, and that of a very superior quality.

Again, English iron is, from its mode of reduction, almost certain to be injured to a greater or less extent by combination with sulphur; the earthy ores, which form nine-tenths of those generally used, are impregnated with that deleterious mineral to a great extent; the coals from which the coke is formed are likewise more or less sulphurous; and this gives the high estimation and value to charcoal iron, or such as has been reduced in the several processes by the agency of wood instead of coal.

It is the object of the patent taken out by Mr. William Clay, to produce wrought iron of best quality, direct from the rich ores hitherto so little used from the causes before-named, by a process simple, rapid, and economical.

To make wrought iron of such quality, for instance, as chain cables are made from, five several operations are necessary, besides the preliminary one of making the coke for the blast furnace, namely:—

1. Roasting the ore.
2. Smelting in the blast furnace.
3. Refining.
4. Puddling, balling, hammering, and rolling.
5. Cutting up, piling, and rolling.

All these processes requiring a separate application of heat.

It is stated in the article on iron, the 106th number of the "Library of Useful Knowledge," a work written with great clearness, and an intimate knowledge of the subject, that 8 tons 17 cwt. 3 lbs. of coals are required for the production of one ton of finished bar iron; doubtless, the introduction of the hot-blast has reduced the consumption of fuel in the smelting operation considerably, and the adoption of anthracite coal may decrease it still further. It seems, however, yet doubtful, whether the best bar iron can be produced from "hot-blast pig" at all events, very small proportions of that description are as yet used in the fabrication of iron of superior quality.

On the patent plan, the operations are reduced to three, namely:—

1. Reducing, or preparing the ore in retorts, or other close vessels.
2. Balling, hammering, and rolling.
3. Cutting, piling, and rolling.

The first of these processes is accomplished by the otherwise waste heat of the two latter, so that only two separate applications of heat are required; and the second operation on this plan commences with the iron in as forward a state as the fourth of the old mode, whereby the cost of fuel and labour, and the enormous outlay of capital in land, blast furnaces, and machinery required to bring iron on the old mode to the third stage, are all avoided.

It is now necessary to state how this is to be accomplished.

Referring to the plan, it will be seen that between a reverberatory furnace of the common construction employed in "puddling," "balling," or "piling" iron, and the chimney, a range of retorts are placed, which are heated on their exterior by the otherwise waste heat of the furnace.

Into these retorts are thrown 100 parts of Ulverstone, or other rich ore, and twenty parts of coke dust, ground charcoal, anthracite, or other carbonaceous matter, well mixed together. The retort is closed, and the vapours generated escape as gas. In the course of from thirty to forty-eight hours, as the heat is greater or less, the carbon will carry off the oxygen, and leave the iron in a metallic state.

It has then to be taken to the balling furnace, where it welds up, like scrap iron, and in fifteen minutes is ready for the hammer; thence it undergoes the customary process of rolling.

It is then cut up, piled, and rolled, and the operation terminates with the production of bar iron of superior and extraordinary quality.

The fourth operation of the old process, "puddling," takes from one and a half to two hours to perform; the second operation of the patent, only fifteen minutes; consequently, the consumption of fuel will be much less than if refined iron were used. It would be idle to compare the simplicity and economy of the first stage of the patent process, with the cost of the three stages required to make the limestone into refined iron on the old mode, when we find by referring to p. 28 of the work alluded to, that if the 8,889 tons of coal consumed in the whole process, 6,989 tons are used up to the refining, so that the 1,9 tons required for the subsequent operations, may be calculated on as more than sufficient for the patent process—to which may be added (if the furnaces themselves do not supply

sufficient cinders), the one-fifth part of the weight of the ore used, to mix therewith, as carbonaceous matter.

An objection may be made by an iron-master that the mode is not wholesale enough—that the retorts contain only hundred weights, while his mighty tower furnaces hold tons. If the question were the production of pig, or cast iron, there might be some weight in this; but the superiority of the patent mode refers more particularly to the production of wrought iron; and here, the largest maker in the kingdom must await the laborious and tedious operation of the puddler—him he can only supply with a few hundred pounds of iron every two hours; so that the retorts have only to furnish the same quantity, to keep up with the puddling furnace of the present system; if necessary, it might be shown that a balling furnace, on this plan, will produce considerably more than a puddling furnace on the old one.

It now only remains to notice the quality of the iron. In no one respect is it inferior to "best common," and in many of its properties it is equal to Swedish or charcoal iron; its tenacity is so great, that of four trials made with patent iron (1-inch chain), at the corporation testing machine, Liverpool, not one broke with a less strain than twenty-six tons, and one link required 28 tons 12½ cwt. to break it, the standard test for that size being sixteen tons.

Experiment on Mr. Clay's method of making bar iron.—150 lbs. of Ulverstone ore and 40½ lbs. of wet coke (losing 12½ per cent. in drying), were put into one of the gas retorts in Dale-street, on Saturday, Nov. 24, at five in the morning, and remained in till ten on Tuesday evening, or sixty-five hours. The heat was maintained at a full red, or common gas-making heat. The above quantity reduced at the Mersey forge (two miles distant) produced in thirty-four minutes two balls of iron—one of 32 lbs. and one of 26 lbs.—58 lbs. The former rolled to one and a quarter inch puddled bar, weighed 30 lbs., and was then brought down under the tilt to three-quarter inch square, and samples taken when broken. The yield 38½ per cent.

Comparative result of melting iron in a cupola with a mixture of anthracite coal and coke, and with coke alone, obtained from repeated trials:—

Old method of filling and working the cupola with coke alone.			New method of filling and working the cupola, with a mixture of coke and anthracite raw coal.		
Charge with coke	cwt.	qrs.	Charge with coke	cwt.	qrs.
Ditto limestone	0	0	Do. anthracite raw coal	2	0
Ditto iron	0	0	Do. limestone	0	0
Ditto coke	0	0	Do. iron	0	0
Ditto iron	0	0	Do. coke	0	0
			Do. anthracite raw coal	0	0
			Do. iron	0	0
			Do. coke	0	0
			Do. anthracite raw coal	0	0
			Do. iron	0	0

And continue filling 1 cwt. 20 lb. of coke to every 24 cwt. of iron, as long as necessary.

The cost of coke fuel for melting each ton of iron, reckoning the coke at 30s. per ton, is 3s. 8d. The cost of the mixed fuel, reckoning the coke at 30s. per ton, and the anthracite coal at 25s. per ton, is only 1s. 8d. per ton, causing a saving of upwards of 50 per cent.; and the anthracite coal being almost pure carbon, has the further effect of improving the quality of the iron.

This experiment was tried at Messrs. Weber's foundry, Liverpool. The anthracite coal was obtained from the Ystalyfera Iron Works, near Swansea, now erecting under the direction of Mr. E. O. Manby, civil engineer.

N.B. The cupola which is now at work, according to the improved method above described, is two feet two inches wide inside, eight feet high, and is blown by a fan blast through a twyer six and a half inches in diameter. The blast was not heated. The quality of the iron was decidedly improved by remelting with anthracite.—Civil Engineer.

NEW COMPANIES.

Under this head we propose to notice weekly the several new projects which may be brought forward, and to which public attention is directed, through the medium of the press or otherwise, confining ourselves, however, to "Public Companies," and briefly noticing their objects with such general information as is conveyed by the prospectuses, or which may be gathered from other sources, on which reliance may be placed. We shall, therefore, feel at all times obliged for particulars duly authenticated, on subject of projected companies; and while it will be our object to avoid the exercise of bias in favour of any particular undertaking, we shall at the same time endeavour to collate such information as is calculated to afford to the capitalist the opportunity of judging of its merits, and the correctness of the opinions put forward in the representations of the projectors.

EAST INDIA INLAND STEAM NAVIGATION COMPANY.

A company is about to be established under the above title, having for its object the internal navigation by steam of our East Indian territories. The splendid rivers which traverse India are well known to all, and no less on the vast population concentrated on their banks, and the immense trade which is at present carried on upon them. The establishment of steam navigation upon these rivers, promises therefore to be attended with the most successful results; more especially, as it is stated that ample supplies of coal can be procured in Calcutta, at a lower price than in London.

We learn from the prospectus, that the goods annually borne down the Ganges amount to 179,450 tons, valued at six millions sterling, and that a proportionable value returns to the interior, that the river runs through a tract of country peopled by more than 60,000,000 of inhabitants, a great number of whom are constantly passing from one station to another, and that it is computed that 100,000 people arrive daily in Calcutta from the villages situated on the banks of the Ganges, for a distance of nearly forty miles.

PROPOSED NEW SHIPPING COMPANY, TO BE CALLED THE
LONDON AND YORKSHIRE SHIPPING COMPANY.

The object of this company is to establish increased facilities of communication between London and the river Humber. We learn from the prospectus, that the trade between London and the West Riding of Yorkshire, is not only of great extent and importance, but is continually increasing, and the advantages which must arise to parties engaged in that trade, from the establishment of a regular daily line of fast sailing vessels will, it is presumed, secure alone (independently of the profit which must result) the necessary support to this undertaking.

THE IRON TRADE.—This important trade is in a very flourishing and satisfactory state. During the whole of the year the price of common bars at the ports in South Wales has remained steadily fixed at 9l. per ton; and although, from the activity and buoyancy of the market, an advance has frequently appeared inevitable, no alteration has taken place. The demand at present is very great; both for home and foreign consumption.—*Merthyr Guardian*.

It was stated last week that at a preparatory meeting of the Staffordshire iron-masters, held at Dudley, it was determined to advance the price of iron 1l. per ton. The Shropshire masters have resolved to follow the example of the Staffordshire houses in their quotations. The wages of the workmen have also been increased.

At a late meeting of iron-masters, the leading members of the trade came to a determination to present Michael Grassbrook, Esq., who has been chairman of their meetings for twenty years, with a service of plate, as an acknowledgment of his services. This determination has been promptly followed up by a subscription of nearly 500l.—*Sheffield Iris*.

PRICE OF SHARES IN BIRMINGHAM.—Birmingham Banking Company, 24l. 10s.; Birmingham and Midland, 35l.; Town and District, 4l. 10s.; Northern and Central, 7d.; Warwick and Leamington 9l.; Commercial Bank of England, 10s. prem.; National Provincial, at par; London and Westminster, 4 prem.; Manchester and Liverpool, 1 prem.; Price of Railways.—London and Birmingham, 80 prem.; Grand Junction, 160 prem.; Birmingham and Gloucester, 16d.; Birmingham and Derby, 16d.; Greenwich and London, 19l.—*British Advertiser*.

THE EXPORTATION OF THE PRECIOUS METALS.—The exportation of the precious metals from the port of London to foreign parts for the past week, ending Saturday last, the 5th inst., is as under:—Gold coin to Hamburg, 1750 oz.; and Gibraltar, 250 oz. Silver coin to Calcutta, 600,000 oz.; Hamburg, 185,000 oz.; Gibraltar, 22,640 oz.; West In-

MINING CORRESPONDENCE.

ENGLISH MINES.

ST. HILARY MINING COMPANY.

Jan. 5.—In the engine-shaft the lode is two feet wide, with good stones of ore. In the rise, back of seventy fathom level west, the lode is eight inches wide, producing half a ton of ore per fathom. In the seventy fathom level east the lode is eighteen inches wide, with good stones of ore. In the sixty fathom level east the lode is eighteen inches wide, every throughout. In the winze, bottom of sixty fathom level west of engine-shaft, the lode is nine inches wide, producing one ton of ore per fathom. There is no alteration in the pitches.

C. H. RICHARDS.

GWINEAR MINING COMPANY.

Jan. 5.—In the thirty fathom level east the lode is four inches—good work. In the rise, back of said level, the lode is six inches wide—good work. In the twenty fathom level east the ground is good, with a little tin. In the twenty fathom level east, on Copper lode, no alteration. We have four pitches working at 12s. for 20s.

C. H. RICHARDS.

FOLDBRENN MINING COMPANY.

Jan. 5.—To-day being our usual time to give you a report of this mine, I beg herewith to hand you the particulars therein. At the twenty-two fathom level, driving west of Vice's shaft, on Dorcas's lode, it is about one foot wide, and continues to produce some very rich work; the same level east on this lode is much of the same size and nature as last reported to you. At the twenty-four fathom level, going west of Williams's shaft, the men have been employed in desling the lode, consequently there is nothing new to report on there beyond what you are aware of. The ground in Vice's flat-rod engine-shaft, sinking below the twenty-two fathom level, continues just as usual. Our tributaries are working steadily, and their prospects are encouraging.

R. ROWE.

EAST WHEAL STRAWBERRY MINING COMPANY.

Jan. 7.—The new engine-shaft is now sunk 16 fms. 2½ in. below the adit. On Friday last we held our monthly setting for these mines, and set ten pitches, varying from 8s. to 10s. in 20s.; four pitches were not out for re-setting; we also set two flatwork bargains. I do not see any thing requiring any remarks from me since our last report beyond the above.

FRANCIS EVANS.

"* In last report, the amount of tin sold should have been 161½ lbs. 6d.

ROSE DOWN MINING COMPANY.

Nov. 23.—I have this day visited this mine, and find the ground in the deep adit, during the last month, has proved rather harder than was expected, and have been obliged to give 60s. per fathom. We have to-day, however, considered a more favourable alteration in the ground will ere long take place, and the price we have now given is 80s. per fathom. In reference to the drain which I mentioned to you in my last report for the unwatering the shallow level, the weather of late has been so wet and severe, that it has retarded our progress; and we consider it will require until the end of next week to complete, after which we hope to commence in work on the tin ground. We have this instant fixed and laid out for the erection of a sump, &c.

RICHARD ROWE.

TAMAR SILVER LEAD MINING COMPANY.

Jan. 1.—In handing you my usual monthly report, it affords me much pleasure in stating that I have minutely examined all the underground operations, and am particularly gratified with my inspection. I consider our prospects highly encouraging, and likely to continue. The engine-shaft is now sunk nearly five fathoms below the 135 fathom level, in a congenial stratum of ground, and there is a large and promising lode, producing some good work, together with the ground favourable for sinking. We have been for some time past exploring very excellent tribute ground in the seventy-five and eighty-five fathom levels, and the lode in both ends is now of a most promising nature, and yielding very good work for silver lead ore, particularly in the latter level; also, in extending the 135 fathom level south, we have lately opened upon a promising lode, upwards of two feet in width, and producing some rich ore; and in most of the other levels driving, we are discovering tribute ground. We have now seventeen pitches working, varying from 7s. 6d. to 14s. 6d. in the pound, on the value of the lead only, and I consider are let on satisfactory terms. It is very early to say the probable quantity we shall sample the ensuing sampling, but we compute it about fifty-six tons; and I hope, on the completion of the burning-house, which was commenced yesterday, we shall obtain a better price for the ore, as it will be the means of destroying the muddle with which some small portion thereof is much impregnated. In conclusion, I beg to repeat, that I am much pleased with my inspection, and cherish sanguine hopes that these mines will long continue productive and profitable.

R. ROWE.

Jan. 7.—Tuesday last was our setting-day, and all of the pitches and bargains were re-set on satisfactory terms, particulars of which you had handed you in setting report; since when the tributaries, have been desling the lode in the several levels, therefore, I can report no alteration, excepting in the eighty-five fathom level going south, where the lode is at least three feet in width, and yields some very good work. Our sumpmen have now sunk the engine-shaft rather more than five fathoms under the 135 fathom level, and the lode still produces some ore work, and is of a very promising nature. You will observe by the setting report that some of the tributaries are reduced. The tributaries are working satisfactorily, and will, I consider, get wages.

MARK JAMES.

KEDMOOR CONSOLIDATED MINING COMPANY.

Callington, Jan. 7.—Johnson's Flat-rod engine-shaft is sunk eight fathoms five feet below the sixty fathom level; and by the close of this month we expect to be sufficiently in depth for a seventy fathom level, and, from the present appearance of the lode in the shaft, we have reason to expect the seventy fathom level will be found far more productive than that of the levels above. Driving east, on Johnson's lode, at the sixty fathom level, the character of the lode is much as hitherto—the ground looks a shade better. The men stopping in the back of this level have been desling the lode during the past week, therefore we cannot say much of its value. We see the present itself on the wall of the lode as we pass along, which is a good omen. North, on the lead lode, at this level, in rising against Johnson's whim-shaft, we are up about four fathoms, as stated in my last; the lode remains the same, as the men are sinking the said shaft below the fifty fathom level, which is down about two fathoms. We expect the present month will also complete this shaft to the sixty fathom level, which will be of an important nature—it will assist the sump which in taking away the broken stuff now laying in the level, and enable us to resume the driving of the north end at this level, where we have a lode of the most encouraging nature, from eight to ten inches in width—rich work for silver lead ore. The lode in the fifty fathom level north has a more favourable appearance than hitherto; about six inches big, yielding a little lead ore. In driving north, at the forty fathom level, and south, at this level, there does not appear the slightest alteration since my last report. At the north mine, in driving east, at the twenty fathom level, the lode is from eighteen to twenty inches in width, chiefly composed of muddle and spar. We sold, on the 31st ult., two parcels of silver lead ore—No. 1, computed 22 tons, at 19l. per 21 cwt., to George Bartley, Esq.; No. 2, computed 30½ tons, at 6l. 2s. per ditto, to Benjamin Sumers, Esq.

SAMUEL HARPUR.

TINROFT MINING COMPANY.

Jan. 2.—I feel pleasure in stating that since my last the 145 east and west have improved both for copper and tin, and are daily becoming more promising. The western end is now getting near, being under the pitch, working at 7s. 6d. tribute in the 123, and in the same channel of ground. The 123 end is yielding saving work; for tin and copper ore, and kindly. The 120, immediately over the latter end, is very much like it. The 120 east is now in a much softer channel of ground than we have ever had in that level before; exactly the same sort of ground as that which precedes the most productive ground in the level above, and through which we have now driven about thirty fathoms, the end (i.e. 110) still continuing good, and likely to continue so. The slopes also in the back of this level are yielding excellent work for copper, with some tin. The eighty-one and ninety ends are producing fair quality work for tin, with some copper. Our pitches in the back of the 100, back of the ninety, eighty-one, and seventy-two, are all looking well, more especially for tin. Our pitches also in the western part of the mine are, on the whole, improving.

W. PAUL.

HOLMBOURNE MINING COMPANY.

Holmboourne, Jan. 7.—In driving north, towards the lode at the 100 fathom level cross-cut, the ground continues much as hitherto, of a tolerably favourable description. In driving west of the engine-shaft, at the eighty fathom level, the lode is from six to eight inches wide, worth about one and a half ton per fathom. In driving west, at the seventy fathom level, the lode wears much the same appearance as last reported, and will yield about one and a half ton per fathom. In driving west, at the sixty-two fathom level, on Flag-jack lode, little alteration. In driving west, at the sixty-two fathom level, the lode appears to be fast improving; it is about two and a half feet wide, and will yield from three to four tons per fathom. The lode in the slopes, back of this level, is still a good course of ore, worth from four to five tons per fathom. The lode in the fifty-two, and also in the forty fathom level, has not been taken down since my last, therefore has nothing new to report. The lode in the slopes, at the back of the fifty-two fathom level, still continues a good course of ore, two and a half feet wide, and worth about six tons per fathom. In driving west, at the thirty-five fathom level, the lode is about fifteen inches wide, producing stones of ore, but not rich. Our tribute pitches in general present a favourable appearance. The pound of copper weighed at Callington assay, on 31st ult., weighed 167 lbs. 16 oz. 9 grs. ore.

F. PHILLIPS.

ENGLISH MINING COMPANY.

Great St. George, Jan. 6.—We sample to-day, at Great St. George, 321 tons; at Wheel Prudence, 81 tons; and at Wheel Leisure, 52. I regret that I cannot hand you a better account of the sampling; the reason of the smallness of that at St. George has been explained in former communications; that at Wheel Prudence I expected to be much larger, and can hardly explain how it is so much less than anticipated. In consequence of the inclemency of the weather we were unable to dress the whole of the ore at this mine; there are probably from five to ten tons left out. The quantity at Wheel Leisure is just about what was expected. H. HUMPHRIES.

UNITED HILLS MINING COMPANY.

Jan. 5.—In the twenty-five fathom level west of old diagonal-shaft the lode is three feet wide, producing but little ore. In the winze, bottom of thirty-five fathom level east, the lode is eighteen inches wide, producing a small quantity of good ore. In the mid-level, east of eastern shaft, the lode is one foot wide, with stones of ore. In the winze, bottom of ten fathom level (new), the lode is two feet wide, ore of a fair quality. In the twenty fathom level east, of eastern shaft, the lode is two feet wide—poor. In the twenty-seven fathom level east the lode is two and a half feet wide, coarse in quality. In the eastern shaft, under the thirty fathom level, the lode is three feet wide, producing some ore, but not rich. In the thirty-six fathom level, east of Turner's, no alteration. West of ditto, the lode is eighteen inches wide—also lodes of which of a good quality. In the forty fathom level east of Williams' shaft the lode is three feet wide, ore throughout, but coarse in quality. In the forty fathom level west of ditto the lode is three and a half feet wide—eighteen inches good ore. C. PENROSE.

FERRAN CONSOLIDATED MINING COMPANY.

Jan. 7.—Having again arrived here from the eastern mines, I find Windsor's Flat-roof shaft is now sunk five fathoms below the fifteen fathom level; the ground is favourable for sinking, and by the end of February we hope to complete it to a twenty-five fathom level. Anthony's lode, at the fifteen fathom level going east, is four feet wide, composed of spar, yellow, mangle, and good stones of lead—a promising level. We have communicated a surface shaft to this level, and find the lode to be productive of pretty good work throughout; we shall now be in a situation to set two pitches at once, at moderate tributes. On Madge's lode we are sinking a winze from the five fathom level, which lode we find to be large, from two to three feet wide, yielding rich stones of lead, mixed in soft white spar, and has a kindly appearance; we shall also be able to set a pitch on this lode immediately. At the fifteen fathom level, south of Flat-roof engine-shaft, we have driven through this lode (Madge's), and find it of a soft succan nature, producing stones of lead, and very wet. Our computed twenty tons of lead, weight 90 tons 11 cwt. 3 qrs., sold to R. and W. Mitchell, at 12½ is. per ton per 91 cwt. dry weight. RICHARD ROWE.

WEST WHEAT FUEL MINING ASSOCIATION.

Jan. 7.—At Buckingham's we are still employed about the work as stated in our last. The thirty east, on Flat-trap lode, is about eighteen inches wide—spar, spotted with yellow ore. In the thirty east, on the south branch, the lode is about ten inches wide, composed of spar, yellow and black ore, producing three-fourths of a ton per fathom. The south shaft has been sunk about two fathoms in the past month. In Wilkinson's engine-shaft the ground is a little more favourable for sinking; lode about two and a half feet wide—flour-spar, peach, &c., and excellent stones of yellow and grey ores. M. WILLIAMS.

THREKIN CONSOLE MINING COMPANY.

Jan. 5.—I beg to say that we have no improvement in driving the twenty-west on Shauger north lode; the end this week has produced enough to pay the month's expenditure in driving that level, beside opening tribute ground; the lode is at present two and a half feet wide, worth 8½ per fathom for copper. The level below is likewise improved. In Christie we have but little alteration in extending the levels, but the pitches are producing good ore, particularly that set in the bottom of the thirty, at 4s. 11. It is greatly improved in going down, and we shall exceed our calculation from it. The forty fathom level promises soon to partake of the same quality. W. SINCOCK.

WEST CORNWALL MINING COMPANY.

Wheel Elizabeth Mine, Jan. 8.—We had our setting on Saturday last; we set a winze to sink in the bottom of the twenty fathom level, by four men, at 40s. per fathom; this winze will divide the ground for the tributes, and be convenient for the south end, at the thirty-three fathom level; there are four men in the south, at the thirty-three fathom, they took four fathoms to drive, for 31. per fathom; there is a very promising lode in this end, for lead and copper. We have stopped the north end at the thirty-three fathom level for the present, and set a winze to sink six fathoms, at 40s.; in the bottom of it they have got a good lode to sink in. We set twelve fathoms to the pump men to drive north and south at the forty-three fathom level, at 6½, 6d. per fathom, four men in each end. There is a very kindly lode in each of these levels—we shall sample about 15 tons of lead on Saturday, and about twenty tons of copper on Tuesday next; this is superior in quality to any we sampled before. JOHN TREKOWETH.

CORNUBIAN MINE.

Chiverton, Jan. 8.—Our forty fathom level east, on the south lode, is not looking as well as it was last week. The same level west, is without alteration since last report. The same level west, on the Chiverton lode, is improved; this level is looking very promising. The thirty-two fathom level west, is failed since last report. I expect that we shall have a good lode there again in a short time. The twenty-four fathom level west, on Chiverton lode, is improved since I wrote you last; very good stones of lead have been broken from this lode in my presence this day. The sixteen fathom level west, we have a tolerable good lode, and I expect that we shall have a better one in the course of a few days. Our tributes in a general way are getting on very well; we have now dressed 14½ tons, undressed 11 tons, underground 6 tons—total 31½ tons. JOHN BURLAKE.

FOREIGN MINES.

MINAS GERAES MINING COMPANY.

Morro das Almas, Nov. 3.—Produce low, owing to the poor state of the southern slopes, where the bed was greatly intermixed with the schistus of the country, which being proved to be so poor, have determined not to extract more for the present, but leave it in the mine to cover the stulls, and carry the southern slopes only as wide as the actual quartz and oxide of iron extends, until it opens again to its former size. A very favourable branch of the bed has been discovered in the hanging wall at the horizon of the landing level; it showed fine samples when washed, and men put there for stopping and extending on its continuation north and south. For the completion of the immediate amalgamation at the new stamps we have been unable to do much during the last month, on account of other pressing works, and the erection of the new wheel, but so soon as the latter is finished, our attention will be fixed to the ore work of the apparatus.—Produce for the month of October, 7½. 1 oz. 5 dwts. 15 grs. J. C. HOCHBERG.

IMPERIAL BRASILEIAN MINING ASSOCIATION.

Rio de Janeiro, Nov. 21.—We now hand you the return of gold just shipped for present conveyance, with second bill of lading, and duplicate note of charges on same. Exchange rather flat, but some business has been done to-day at 2½, at which it closes for this opportunity.

NAYLOR, BROTHERS AND CO.

George Barr, Nov. 6.—It is with much pleasure I give you the assurance, that although your mine is at present poor, every exertion is being made to render it productive, and that this establishment is healthy and peaceable.

J. MORAN.

Gold produce from 30th October to 31st November (nine days).—Stamps, 8½ oz. 9 dwts. 15 grs.—12 lbs. 7 oz. 1 dwt. 4 grs.—Total from 1st July to 31st Nov., 51½ lbs. 5 oz. 5 dwts. 20 grs.

ST. JOHN DEL REY MINING COMPANY.

Morro Velho, Nov. 3.—Produce.—The gold produce for October, extracted up to date, is 1117 ozs.; there are also now burning off 60 marcos 2 oz. 1 dwt. amalgam has 6 ozs. of gold, and amount of sand on hand valued at 1538 ozs., making a total of 6553 ozs. inclusive of arrears; deducting the estimated arrears of last month, viz., 507 ozs., the produce of October will appear at about 5716 ozs. The amalgam just burnt off has yielded 940 ozs. gold, being about 150 ozs. more than the above estimate. There have been stamped only 1377 tons of ore, from the circumstance of the slow rate of the stamps, the water having been short, the amalgamation per barrel has been very tedious, requiring five days to complete. In amalgamating the particular quality of ore per day has been, and we find gold on the strikes in considerable quantity. Seeing the occasional tediousness of the operation per barrel, I am going to have eight barrels erected, to keep us clear of arrears.

Mine.—In sinking of the lode shaft good speed is being made, five feet having been sunk last month. We have now provided two good stopes, and when the electric pumps are in, we shall not much fear the rains. The new winze is working at Crickett's shaft, and will save labour, I hope, in clearing the stopes. In the Gamba very good progress is being made at present in driving along the lode to lay it open, driven feet having been driven in eight days; one one-half stamp is kept solely on the stuff broken in this mine, of which I still continue to hold the same favourable opinion, seeing with what facility the ground is worked. C. HERRING, Junr.

NATIONAL BRASILEIAN MINING ASSOCIATION.

Extracts from the Mining Captain's Report, dated Corcovado, Nov. 3. I beg, with very much pleasure, to hand you a report of our proceedings since the 10th ult., and I beg previously, with still greater pleasure, to refer you to our gold returns for the last ten days—it is so favourable, and likely to continue so favourable, that our labours are at last crowned with success. Our operations at the seventeen fathom level have been checked on with so

sibly permit; and the north end is only now about, according to the underlie and direction of it at the ten fathom level and above, six feet short of cutting the shoot of gold gone down on the latter, and from the appearance of the lode in the end, and the samples, there is no doubt but we are approximating it; the stone which we commenced driving obliquely through, this ground continued hard and unpromising for the major part of these ten days, but the stone, which is compact jacotings, is becoming gradually softer, and small floors of decomposed quartz, mica, and manganese just making their appearance, and they are, as we proceed, approaching each other; no doubt, therefore, that when they come together, which will be very shortly, we shall meet the shoot of gold gone down above; they have the aspect in every respect of the veins, only they have not yet united, but before the next post they inevitably must, if they continue, when I fully expect to have the satisfaction of announcing to you that we are rich at the seventeen fathom level also, where the junction of these floors must take place, is the spot where the direction of the shoot above will bring it at this level. You will not fail to observe that our promises are in a great measure realised, and that you have not been asked to have patience in vain.

Produce from 29th October to 8th Nov., 24 marcs. 5 5 71.

BOLANOS MINING COMPANY.

Extract from Report furnished by the Commissioners of Real del Monte, Zacapa, Oct. 27.—Having visited San Onofre, and remained several days at and near the spot, we reached this place on our return last evening, after a fatiguing journey. The affairs of San Onofre, are, upon the whole, satisfactory; nine varas have been driven upon the vein into the hill, which have given, upon a moderate calculation, 130 cargas of ore, the end still being as good as it ever has been; these 130 cargas, will, I think, produce on an average 5 per cent., which, reckoning the carga at 10 arrobas, would give 1975 lbs. The workings upon the vein have been very little extended; and it would certainly be desirable, before we proceed to erect any very expensive works, to make a further trial thereupon, both in length and depth; seeing, however, the regularity of the vein, and the produce it has given, with scarcely any variation, I feel a confident hope that it is not likely soon to fail. Under this impression, and seeing the peculiar situation of this country, which may present obstacles to the importation of quick-silver in future, I have considered it advisable to risk the commencement of the works for the reduction of the ore, and have therefore fixed upon a spot at about four leagues distance from the mine, for the purpose, and certainly under a combination of circumstances much more favourable than from what I had previously heard, I had been led to expect. It is in a valley near a small lake, which will always supply the water required; the sides of the valley and the mountains for a considerable distance are covered with wood, so that timber and fuel can be obtained at a very cheap rate, the mountains being a kind of common property for the use of the miners of the district, who are at liberty not only to take the wood, but to pasture their cattle free of cost. At the spot chosen, there is plenty of limestone, clay for making bricks, and excellent flat-stone, suitable for building; and as the wages of common labourers or peons is only 2 reals per day, everything can be done at a very moderate cost. We have named the place Hacienda de Laguna, and have then marked out the foundation of a dwelling-house, &c., the site of a building for the reduction of the ore, a brick-kiln, and a shed for driving bricks.

UNITED MEXICAN MINING ASSOCIATION.

Report on the State of the Workings of the Mine of Rayas.

Oct. 18.—La Purissima—Santa Victoria.—The upper front to the north-west of the pit of Santa Lucia, has been communicated with the pit of San Rafael. In the lower front, a small quantity of good ore is appearing against the upper side of the working—the advanced part continues poor. The produce from the pit of Apostoles is of a very ordinary nature. A few rich threads of ore are found accompanying the common classes in the front to the south-east of Santa Margarita. The roofs of San Lazaro and Apostoles are suspended, the ores having been completely lost sight of, and the lode being very compact in both workings. A small portion of the common classes of ore is still met with in Santa Irene, but the produce is now inconsiderable. A narrow body of fair ore is being followed up to the west of the pit of San Porfirio, near its commencement; and, in the roof of the front of Trinidad, a bunch of ore, consisting of rich threads, and good common classes, is being worked; this is at present the most productive working in La Purissima. The roof of Dolores has been communicated in two points with the pit of the same name.

San Hermion.—The roof of the front to the north-west contains a small quantity of ordinary ore; the pit has been suspended, the ores having failed. The front and roof to the south-east of Varones, have both fallen into barrenness, and a pit has just been commenced on some narrow threads, in the point most advanced to the south-east. The pit of San Matias produces a small quantity of ordinary ore. The cross-cut of Pilar is suspended, having passed, in barrenness, the point at which it was expected the good ores of Varones might have been found. Thirty-one pairs of barmen are now employed in La Purissima by day, and twenty by night. The weekly produce of ore in the rough state has averaged 1065 cargas, which, when picked, have yielded 141 cargas of azogues, of about twelve marcos per monton in the patio, and about two marcos plata de ley in the arrastres; fifty-four cargas tierras de mortero, and 121 cargas tierras de labor, together of about five marcos per monton in the patio, and nearly one marc plata de ley in the arrastres.

San Cayetano.—The fourth pit of Jesus produces a small quantity of ordinary ore. The pit of San Feliciano contains a narrow band of good ore, running completely across the working towards the upper part, and the usual body of ore in the lower part. In the front to the south-east the ores are now confined to the very centre of the working. The pit and roof of Santa Cecilia are yielding a fair quantity of ore, of good quality—the best are found on the north-west side of the pit. A few varas below this point a front has been driven through a long pillar between the pits of San Pablo and San Francisco, and a fair quantity of very rich ores has been extracted. Above this point again, in the communication between San Pablo and La Luz, and at the commencement of the pit of San Francisco, a roof is being opened, which contains a thread of remarkably rich ore amongst the common classes.

Twenty-five pairs of barmen are now employed in San Cayetano by day, and twenty-three by night.

San Pio and Los Reyes.—In the roof of San Pio a band of fine ore crosses the working against the upper side, below which there is a considerable quantity of ore of the common classes. In the front to the south-east of Los Reyes a small portion of ore is being thrown down from the roof; this working has just been commenced, and nothing particular can be said respecting it.

Eight pairs of barmen have been employed in these two points by day, and as many by night.

The weekly produce of ore in the rough state from San Cayetano and San Pio, has averaged 1080 cargas, which, when picked, have yielded 139 cargas of azogues, and 23 cargas tierras de mortero, together of 12 marc per monton in the patio, and 1 marc plata de ley in the arrastres.

San Juan Bautista.—This front has been driven 3½ varas since the last report; a very slight variation in the lode has taken place—small specks of ore continue as the work advances.

San Miguel.—In the front to the south-east of San Francisco a pit is being opened, in which the ores appear to be of a better class than those lately extracted. The roof advances without any variation, and a front to the north-west is about to be commenced. A communication has been opened with this working, from one of the old points, by which it is considerably ventilated. On examining the two solid points of the lode, mentioned in the last report, nothing particular was met with, nor has anything worthy of notice occurred whilst following up the old workings. Seventy-five cargas of ore have been picked, produced from San Francisco. The business have sold (in Rio de Janeiro) their share of ore for \$12,630 1, and the mine's share has been sent to the hacienda of Dolores, the produce of the hacienda's workings being sent to Barrera as follows:—

Dolores	Cargas	1397½
Barrera	1806	—3100½
Ores on hand at the Mine.		
Picked	Cargas	916
Unpicked	1380	—2246

G. R. GREENIE.

Guamucato, Oct. 18.—Mine of Rayas.—Since the date of my last dispatch, little or no alteration has taken place in the several workings of Purissima and San Cayetano, with the exception of the last, and that from one point only, a kind of intermedio or pillar between two workings left in 1834, for the purposes of additional support, and now become unnecessary. The produce from this point, although comparatively small, has proved of high quality, it being considered to contain from eighteen to twenty marcos of silver (independent of gold) per monton, while the select portion of such produce is estimated at 180 marcos per monton. This pillar has been nearly worked out, but at two points issuing from the same spot, two rich threads of ore have been laid open, and are now being worked out with as much expedition as the narrow limits of the workings will permit. The ore from Purissima, as also from San Cayetano, in the last four weeks, give a higher average of extraction than during the preceding period, noticed in my last letter; the quantity of the former gives a weekly produce of 510 cargas, while the latter gave but 493. The ore extracted on joint account with the business, continues to be divided between them and the mine, the latter receiving its portion in kind; there have been four sales made by the former, which have yielded \$13,400 1, and it is fully expected that the ore received by the mine will realise the same net value, if not more. Upon this supposition, the general produce of ore, during the last four weeks, is estimated to yield a weekly profit of about \$1390 after and above all expenses of the mine, and

By the enclosed statement of Rayas outlay, &c., it will be seen that the estimated profit over all expenditure is given at \$35,748 5 6, which is higher than the result, which the returns of the last four weeks, added to the statement transmitted by the preceding packet, should show; but this excess is owing to the low standard affixed to the ores, in the first instance, sent to the hacienda of Barrera and Dolores, which are now respectively taken at nine and sixteen marcos per monton, instead of six and a half and thirteen, as per former statement. The statement of outlay, &c., of Rayas, in respect of the contract ended on the 29th April last, will not be transmitted herewith, the account, &c., corresponding thereto having been closed. A parcel of 642 marcos of plata mixta, lately received for account of Rayas, shows an average standard of 770 grains to the marc, and has yielded \$20,633, or \$32 per marc.

Statement showing the outlay and returns in respect of the mine of Rayas from the 29th of April to the week ending the 13th Oct., 1838; and the value of ores on hand:—

Amount of outlay from the 28th April to 13th October, 1838	\$104,367	7	3	
Ditto returns during the same period	132,947	5	0	61,420 2 3
Value of Ores at Haciendas belonging to the Mine.				
Hacienda of Dolores	\$50,942	0	0	
Hacienda of Barrera	37,227	0	0	
At the mine of Rayas	9,000	0	0	97,169 0 0
Surplus				\$35,748 5 5
J. N. SHOOLBRED.				

J. N. SHOOLBRED.

BRAZILIAN COMPANY.

Cata Branca, Nov. 4.—This being the first time Capt. Williams has seen the lacara, it may be well I should bear witness to the correctness of his observations thereupon. Better stone never came from it; and I glad to say that, westward of the cross-course, which heretofore you are aware was mixed, a firm stone, and more promising, seems coming in. It appears that our patience is to be tried by the ends until the last; we have had speed the last month—perseverance, doubtless, will conquer in time. An officer from the Morro das Almas establishment leaves on the morning of the 6th; he will take from this 142½ lbs. 6 oz. 6 grs. of gold (being exclusive of the 5 per cent. duty), the produce from the 18th of August to the 23d inst., inclusive, and which I hope will reach you in safety.—Arrived at Falmouth per *Albatross* packet. W. COTTESWORTH.

Gold return, for week ending 24 Nov., exclusive of part reserved for amalgamation, 8½ lbs. 3 oz. 10 dwts. 2 grs.

SACATECAS MINING COMPANY.

The accounts from the mines come down to the 14th October. **Leon.**—In this mine, works of discovery were going on without any particular result. Narrow strips of ore were met with in various parts of the mine, but the extraction still continued small. Mr. Schuchardt writes:—“Prior to the arrival of the packet, we had determined to re-commence working the winze of the Vispera, on Cata de Plata lode, and had already begun a cross-cut to communicate it with the branch of footwall; but under present circumstances it has been judged prudent to suspend this work; in case we should hereafter think of doing anything of importance in this point, it will be necessary to sink a new shaft, and for this it seems there are no disposable funds. In the neighbouring mine of Cata de Plata, all the good ores have been found below the old water's level; arriving at the water, be it ever so little, a shaft would be indispensable.”

Valenciana.—In the last week but one of the month we reached the lode in the second cross-cut, and cut through it entirely during the last week; we found it one vara wide, and composed of quartz and pieces of greywacke, and clay, slate, and silver ores in boleto; the water is very quick, indeed, so much so, that it could not be kept in fork with the four malacates, and the people lost much time. On this account it was judged necessary to suspend the drainage and all other works until a steam-engine could be placed. I have had occasion previously to mention to you, that the tira of Valenciana would hardly admit of four malacates working conveniently, so we have as means of augmenting our drainage, except by placing a steam-engine; besides, the cost of maintaining so many malacates is enormous, one-half of which at least would be saved by the employment of a steam-engine; we should likewise be enabled to follow up our works, sink the shaft, &c., so as to get at the negro ores, in which our great hopes were fixed, and not in the variable colorados. Other works were going on in the mine, but no particular discovery had been made. The mines of Santa Teresa and Trinidad were kept in a state of mere amparo.

ANGLO-MEXICAN MINING COMPANY.

Guamucato, Oct. 19.—San Bernabe.—Four further dividends have been received on account of the debt of this mine, amounting together to \$78 2 8; the prospects of this mine, seem, however, to be on the decline again.

Sirena.—The state of this mine continues very discouraging; the following has been the result of the last four weeks:
Week ending 23d ult., memoria \$283 0 9; mine share of sale 352 3 6
“ 29th “ 621 4 11 “ “ 219 1 6
“ 6th inst. “ 817 5 10 “ “ 905 6 6
“ 13th “ 533 1 11 “ “ 181 1 6

and about 200 cargas of ore, which will be beneficiated at pastila \$300. The falling-off in the weekly sales is to be attributed in some degree to the business themselves, who have been attracted in great numbers to the neighbouring mine of Rayas, where their favourite system of partida has lately been introduced, that is, dividing the ore between the buscon and the mine, instead of selling it in company and dividing the money. In consequence, very few of the campos in Sirena have been worked with regularity; indeed, many of them not more than a day or a day and a half in each week. The chief cause is, however, without doubt; and unfortunately the poverty of the mine itself. The two combined, render it impossible (for the present at least) to cover the expenses of the business, by their produce; and I have, therefore, this week, ordered all the campos to be suspended. The operations now carrying on, are confined to one work of destajo, which ought very shortly to be finished, and to the extraction of ore from two or three points on hacienda account—the ore are being sent to Pastila for reduction, &c. count of the mine, and will, I hope, cover, or nearly so, the memoria; I shall have no alternative left but to suspend operations, and reduce the mine to a state of amparo.

St. Lorenzo and San Augustin, Asuncion and Santa Urrula.—These mines have hitherto disappointed us as to the quantity of ore expected from them, inasmuch as a great part thereof turns out by assay, to be of less value than we had anticipated, nevertheless, I still entertain the hope and confident expectation of doing some good with them yet. The ores are very deceptive in appearance; that which to the eye seems extraordinarily good, very frequently turns out just the reverse; while that which would appear to contain next to nothing, is found very rich, especially in gold. For instance, some of the anague common of San Lorenzo, which had been sent to Pastila, and been twice pisenado, was assayed two or three different times, the ley of silver never exceeding 2 marcos, and that of gold being sometimes high and sometimes low. In order to see the result on a larger scale, I had 27 cargas of it ground up in a new arrastre empelido, with pella equal to 2 marcos of pure silver; the arrastre was afterwards scrapped, and produced 31 marcos plata mixta, which contained 833 grains of gold per marc—thus the 27 cargas left in the arrastre 1½ marc of silver, and 3674 grains of gold, equal to 34 ounces of silver, and 801 grains of gold per monton, a result by no means discouraging. My present impression of the general character of these mines, is, that the ores of San Lorenzo, &c., are very rich in gold, but poor in silver; those of Asuncion rich in silver, with but a low ley of gold; and that the body or mass of the lode will generally be found in both mines to be composed of ore of low standard, some of which, and perhaps a large proportion, too poor to pay for extraction. The mines themselves are extensive, the courses very formal and wide, and notwithstanding their not having yet come up to our expectations, I repeat my belief, that in the course of time, as difficulties are overcome, and the character of the ores themselves better understood, we shall make them profitable.

BANK OF ENGLAND.—QUARTERLY STATEMENT OF THE WEEKLY LIABILITIES AND ASSETS, FROM OCT. 5 TO JAN. 5, INCLUSIVE.

LIABILITIES.		ASSETS.	
Circulation	£18,301,000	Securities	£21,560,000
Deposits	10,315,000	Balances	9,236,000
	£28,616,000		£31,016,000

Downing-street, Jan. 10.

ACCIDENT ON THE NORTH UNION RAILWAY.—The train which left Preston, at five o'clock on Sunday afternoon, whilst putting down and taking up passengers at Leyland, was run into by the mail train which left about a quarter past five. The foreman of the mail train had his head dreadfully crushed, but fortunately no other individual in the train was hurt.—*Lancaster Standard.*

NORTH MIDLAND RAILWAY.—This mighty undertaking is advancing with all reasonable speed. The different portions of railroad in a state of completion, when considered collectively, form about one half of the line. Many piers rise, and noble arches present their mighty aid to the gratification of the occasional rambler in the vicinity of Chadd, while at Clay Cross between 900 and 1000 yards of track is finished. It is intended, we understand, to form a first class station

